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Rockat Leaflet

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JUST <u>2L</u>	NEXT REV <u>2010</u>	AUTH: <u>HR 10-2</u>

ORIGINAL CL BY 235979
☐ DECL ☒ REVW ON 2010
EXT BYND 6 YRS BY SAME
REASON 3 & 31

PROGRESS REPORT

FOR

OCTOBER 1955

ON

4-INCH ROCKET

November 28, 1955

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During October, work progressed sufficiently so that flight tests could be planned. Previous static tests had shown that the design could withstand operating conditions and pressures similar to those expected in flight.

Two three-tube models were constructed, each tube having 3" grains of propellant with a Kn of 140. The complete rocket was 4" in diameter and 17" in length, weighing 2.45 lbs. without payload. Each chuffed badly during burning, apparently caused by poor ignition. Later in the month, three additional models were constructed, each having three tubes with 5" grains, necessary because a simulated payload was contained bringing the weight to 3.2 lbs. Although these models had a slightly higher Kn of 148, the first two models tested had poor ignition and chuffed during flight. Since the day was cold, the third model was warmed before flight and performed well, however, its flight was approximately 10° off course. Its range was near that calculated and upon examination the unit showed no indication of damage. Additional testing will be performed to discover the cause of failure.

Early in the month, a three-tube 4" model was successfully static tested with a polyester head reinforced with glass cloth. It is hoped that a head material of this type can be developed with attendant savings in cost. Additional static tests were made in the series, testing other bonding resins. Armstrong "A-6" proved inferior at a Kn of 200 but Cycleweld and Bakelite Epoxy resins held up to a Kn of 230. This corresponds to an operating pressure of 2200 psi, which is twice that anticipated. Since Cycleweld did not demonstrate any superiority over Bakelite Epoxy, its use is not contemplated at the present time. The results indicate a bonding safety factor of two and a lessened danger of nozzle blowout.

Future Work

Further flight tests will be undertaken with a simulated payload. At the same time, these models will be designed for 1000 yards range. For this reason and also to determine the cause of previous failures, the 1000 yard model will be static tested with various size igniters and refrigerated to 35°F. The most probable cause for failure appears to be the effect of cold. To counteract this effect, the 1000 yard model will have an increased Kn so as to lessen the chance of "chuff-out" at low temperatures.

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Financial Statement

Total Amount of Contract (Phases 1 and 2)


Obligations for October, 1955

Total Obligations to October 31, 1955

Balance of Contract

50X1

Expiration Date - February 1, 1956

* This total includes  for an anticipated overhead increase for the first six months of 1955.

50X1

*Logged
12/2/55
JH.*

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